

NEW ABSTRACT

Please delete the current Abstract and insert the following new Abstract:

A fiber-ring optical resonator comprises a transverse segment of an optical fiber differing from adjacent segments in at least one physical property (e.g., diameter, density, refractive index, chemical composition, etc) so that it may support a resonant circumferential optical mode and enable evanescent optical coupling between the circumferential mode and an optical mode of a second optical element. The resonator may be fabricated with alignment structure(s) for enabling passive alignment of the second optical element for evanescent coupling, and/or with structure for suppressing undesired modes and/or resonances. A fiber-ring resonator may form a portion of a resonant optical filter or modulator. A plurality of optically-coupled fiber-ring resonators (formed on one or more fibers) may provide tailored spectral properties. Spatially-selective techniques for forming a fiber-ring resonator may include masking/etching, masking/deposition, laser machining, laser patterning, combinations thereof, and/or functional equivalents thereof.